**3GPP TSG-CT WG4 Meeting #111-eC4-224xxx**

**E-Meeting, 18th – 26th August 2022 Revision of C4-224228**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.518** | **CR** |  | **rev** | **1** | **Current version:** | **17.6.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | MSC Server Identity in Namf\_Location\_EventNotify during SRVCC handover | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_SRVCC | | | | |  | ***Date:*** | | | 2022.07.01 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | A |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | CR 23.216 #0374 (AMF interaction with GMLC at SRVCC for an Emergency session) specifies that the MME\_SRVCC provides the MSC Server Identity to the AMF over N26 in Forward Relocation response during an 5G-SRVCC from NG-RAN to 3GPP UTRAN procedure, to enable the AMF to provide this information to the GMLC. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The NotifiedPosInfo is extended with a new IE carrying the MSC number during an 5G-SRVCC from NG-RAN to 3GPP UTRAN procedure. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The AMF cannot provide the GMLC with the MSC Number during a 5G-SRVCC from NG-RAN to 3GPP UTRAN procedure, i.e. it is not possible to fulfill the requirement for emergency services in clause 6.5.4 of TS 23.216 and clause 6.10.3 of TS 23.273. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.5.2.3.1, 6.4.6.2.4, 6.4.6.3.2. A.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 29.274 CR 2060 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This contribution proposes backward compatible corrections to the OpenAPI definition of the Namf\_Location API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev 1: merge Huawei CR | | | | | | | | |

\* \* \* First Change \* \* \* \*

##### 5.5.2.3.1 General

The EventNotify service operation is used in the following procedure:

- 5GC-NI-LR Procedure (see 3GPP TS 23.273 [42], clause 6.10.1)

- Location Continuity for Handover of an Emergency session from NG-RAN (see 3GPP TS 23.273 [42], clause 6.10.3)

- Completion of a deferred location for the UE available event or activation of deferred location for periodic location, area event triggered location or motion event triggered location (see 3GPP TS 23.273 [42], clause 6.3.1)

The EventNotify service operation notifies the NF Service Consumer (i.e. GMLC) about a UE location related event information related to emergency sessions or deferred location, i.e. the initiation, handover or termination of an emergency session or the completion or activation of deferred location. The notification is delivered to:

- the callback URI received from the GMLC during an earlier ProvidePositioningInfo service operation, if any;

Otherwise (if not available),

- the callback URI registered in the NRF, if the GMLC registered to the NRF with notification endpoints for location notifications (see clauses 6.1.6.2.4 and 6.1.6.3.4 of 3GPP TS 29.510 [29]);

Otherwise (if not available),

- GMLC URI locally provisioned in the AMF.

NOTE: During a handover procedure, both the source AMF and the target AMF can invoke the EventNotify service operation, based on the local configuration.

The operation is invoked by issuing a POST request to the callback URI of the NF Service Consumer (See clause 6.4.5.2.2). See also figure 5.5.2.3.1-1.



Figure 5.5.2.3.1-1: UE Location Notification

1. The AMF shall send a POST request to the callback URI provided by the NF service consumer determined as described above. The request body shall include the type of location related event and UE Identification (SUPI or PEI), and may include the GPSI,Geodetic Location, Local Location, Civic Location, MSC server identity, the Position methods used or a serving LMF identification for activation of periodic or triggered location.

2a. On success, "204 No content" shall be returned by the NF Service Consumer.

2b. On failure or redirection, the appropriate HTTP status code (e.g. "403 Forbidden") indicating the error shall be returned and appropriate additional error information should be returned.

\* \* \* Next Change \* \* \* \*

##### 

6.4.6.1 General

This clause specifies the application data model supported by the API.

[..]

**Table 6.4.6.1-2: Namf\_Location re-used Data Types**

|  |  |  |
| --- | --- | --- |
| **Data type** | **Reference** | **Comments** |
| Supi | 3GPP TS 29.571 [6] | Subscription Permanent Identifier |
| Gpsi | 3GPP TS 29.571 [6] | General Public Subscription Identifier |
| Pei | 3GPP TS 29.571 [6] | Permanent Equipment Identifier |
| ExternalClientType | 3GPP TS 29.572 [25] | LCS Client Type (Emergency, Lawful Interception …) |
| LocationQoS | 3GPP TS 29.572 [25] | LCS QoS (accuracy, response time) |
| SupportedGADShapes | 3GPP TS 29.572 [25] | LCS supported GAD shapes |
| GeographicArea | 3GPP TS 29.572 [25] | Estimate of the location of the UE |
| AccuracyFulfilmentIndicator | 3GPP TS 29.572 [25] | Requested accuracy was fulfilled or not |
| AgeOfLocationEstimate | 3GPP TS 29.572 [25] | Age Of Location Estimate |
| PositioningMethodAndUsage | 3GPP TS 29.572 [25] | Usage of each non-GANSS positioning method |
| VelocityEstimate | 3GPP TS 29.572 [25] | Estimate of the velocity of the target UE |
| VelocityRequested | 3GPP TS 29.572 [25] | Indication of the Velocity requirement |
| LcsPriority | 3GPP TS 29.572 [25] | Priority of the LCS client |
| GnssPositioningMethodAndUsage | 3GPP TS 29.572 [25] | Usage of each GANSS positioning method |
| CivicAddress | 3GPP TS 29.572 [25] | Civic address |
| BarometricPressure | 3GPP TS 29.572 [25] | Barometric Pressure |
| Altitude | 3GPP TS 29.572 [25] | Altitude estimate of the UE |
| LocalArea | 3GPP TS 29.572 [25] | Local area specified by different shape |
| MinorLocationQoS | 3GPP TS 29.572 [25] | Minor Location QoS |
| Ecgi | 3GPP TS 29.571 [6] | UE EUTRAN cell information |
| Ncgi | 3GPP TS 29.571 [6] | UE NR cell information |
| SupportedFeatures | 3GPP TS 29.571 [6] | Supported Features |
| RatType | 3GPP TS 29.571 [6] | RAT type |
| TimeZone | 3GPP TS 29.571 [6] | Time Zone |
| DateTime | 3GPP TS 29.571 [6] | Date and Time |
| UserLocation | 3GPP TS 29.571 [6] | User Location |
| LcsServiceType | 3GPP TS 29.572 [25] | The LCS service type |
| LdrType | 3GPP TS 29.572 [25] | The type of LDR for deferred location |
| Uri | 3GPP TS 29.571 [6] | URI |
| LdrReference | 3GPP TS 29.572 [25] | LDR Reference Number for deferred location |
| PeriodicEventInfo | 3GPP TS 29.572 [25] | Information for periodic event reporting |
| AreaEventInfo | 3GPP TS 29.572 [25] | Information for area event reporting |
| MotionEventInfo | 3GPP TS 29.572 [25] | Information for motion event reporting |
| ExternalClientIdentification | 3GPP TS 29.515 [46] | External LCS client identification |
| NFInstanceId | 3GPP TS 29.571 [6] | Identification of an NF or AF |
| CodeWord | 3GPP TS 29.515 [46] | Codeword for a 5GC-MT-LR or deferred 5GC-MT-LR |
| LMFIdentification | 3GPP TS 29.572 [25] | Identification of a serving LMF for periodic or triggered location |
| TerminationCause | 3GPP TS 29.572 [25] | Termination cause for a deferred location |
| UePrivacyRequirements | 3GPP TS 29.515 [46] | The location related privacy requirements on UE |
| DiameterIdentity | 3GPP TS 29.571 [6] | Diameter Identity |
| ProblemDetails | 3GPP TS 29.571 [6] | Detailed problems in failure case |
| RedirectResponse | 3GPP TS 29.571 [6] | Response body of the redirect response message. |
| E164Number | 3GPP TS 29.503 [35] | The E.164 number. |

[..]

\* \* \* Next Change \* \* \* \*

##### 6.4.6.2.4 Type: NotifiedPosInfo

Table 6.4.6.2.4-1: Definition of type NotifiedPosInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| locationEvent | LocationEvent | M | 1 | This IE shall contain the type of event that caused the location procedure to be initiated. |  |
| supi | Supi | C | 0..1 | This IE shall contain the SUPI if available (see NOTE 1). |  |
| gpsi | Gpsi | C | 0..1 | This IE shall contain the GPSI if available (see NOTE 1). |  |
| pei | Pei | C | 0..1 | This IE shall contain the PEI if available (see NOTE 1). |  |
| locationEstimate | GeographicArea | O | 0..1 | If present, this IE shall contain an estimate of the location of the UE in universal coordinates and the accuracy of the estimate. |  |
| localLocationEstimate | LocalArea | O | 0..1 | When present, this IE shall indicate a local area in renference system. |  |
| ageOfLocationEstimate | AgeOfLocationEstimate | O | 0..1 | If present, this IE shall contain an indication of how long ago the location estimate was obtained. |  |
| timestampOfLocationEstimate | DateTime | O | 0..1 | When present, this IE shall indicate the estimated UTC time when the location estimate corresponded to the UE location (i.e. when the location estimate and the actual UE location was the same). |  |
| velocityEstimate | VelocityEstimate | O | 0..1 | If present, this IE shall contain an estimate of the velocity of the target UE, composed by horizontal speed, vertical speed, and their respective uncertainty. |  |
| positioningDataList | array(PositioningMethodAndUsage) | O | 0..9 | If present, this IE shall indicate the usage of each non-GANSS positioning method that was attempted to determine the location estimate, either successfully or unsuccessfully. |  |
| gnssPositioningDataList | array(GnssPositioningMethodAndUsage) | O | 0..9 | If present, this IE shall indicate the usage of each GANSS positioning method that was attempted to determine the location estimate, either successfully or unsuccessfully. |  |
| ecgi | Ecgi | O | 0..1 | If present, this IE shall contain the current EUTRAN cell location of the target UE as delivered by the 5G-AN. |  |
| ncgi | Ncgi | O | 0..1 | If present, this IE shall contain the current NR cell location of the target UE as delivered by the 5G-AN. |  |
| servingNode | NfInstanceId | O | 0..1 | If present, this IE shall contain the address of the serving node. For intra-5GS handover of an IMS Emergency Call, this IE shall contain the address of the target side serving node. For mobility of a UE with periodic or triggered location, this IE shall contain the address of the new serving node, if available. |  |
| targetMmeName | DiameterIdentity | C | 0..1 | This IE shall be present for handover of IMS emergency call to EPS, i.e. the target node is an MME.  When present, this IE shall indicate the Diameter host name of the target MME. |  |
| targetMmeRealm | DiameterIdentity | C | 0..1 | This IE shall be present for handover of IMS emergency call to EPS, i.e. the target node is an MME.  When present, this IE shall indicate the Diameter realm of the target MME. |  |
| utranSrvccInd | boolean | C | 0..1 | This IE shall be present with value "true" for 5G-SRVCC to 3GPP UTRAN of IMS emergency call, i.e. target node is an MSC.  When present, this IE shall be set for the following value:  true: IMS emergency call handover to UTRAN  false: No IMS emergency call handover to UTRAN |  |
| civicAddress | CivicAddress | O | 0..1 | If present, this IE contains a location estimate for the target UE expressed as a Civic address. |  |
| barometricPressure | BarometricPressure | O | 0..1 | If present, this IE contains the barometric pressure measurement as reported by the target UE. |  |
| altitude | Altitude | O | 0..1 | If present, this IE indicates the altitude of the positioning estimate. |  |
| hgmlcCallBackURI | Uri | C | 0..1 | This IE contains the callback URI of the H-GMLC  This IE shall be included for a locationEvent related to deferred location when the consumer NF is not the H-GMLC. |  |
| ldrReference | LdrReference | C | 0..1 | This IE contains an LDR Reference.  This IE shall be included for a locationEvent related to deferred location. |  |
| servingLMFIdentification | LMFIdentification | C | 0..1 | This IE contains the identification of a serving LMF and shall be included for a locationEvent related to deferred location with periodic or triggered location if a serving LMF is used. |  |
| terminationCause | TerminationCause | C | 0..1 | This IE indicates a reason for termination and shall be included for a locationEvent related to deferred location if deferred location has been terminated. |  |
| achievedQos | MinorLocationQoS | O | 0..1 | When present, this IE shall contain the achieved Location QoS Accuracy of the estimated location.  This IE shall be present if received from LMF. | MUTIQOS |
| mscServerId | E164Number | O | 0..1 | This IE may be sent from AMF to GMLC, during a 5G-SRVCC handover from NG-RAN to UTRAN procedure.  When present, it shall contain the international E.164 number of the MSC Server selected by the MME\_SRVCC. |  |
| NOTE 1: At least one of these IEs shall be present in the message. | | | | |  |

\* \* \* Next Change \* \* \* \*

## A.5 Namf\_Location

openapi: 3.0.0

[..]

NotifiedPosInfo:

description: Data within EventNotify notification

type: object

properties:

locationEvent:

$ref: '#/components/schemas/LocationEvent'

supi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Supi'

gpsi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Gpsi'

pei:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Pei'

locationEstimate:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/GeographicArea'

localLocationEstimate:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LocalArea'

ageOfLocationEstimate:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/AgeOfLocationEstimate'

timestampOfLocationEstimate:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

velocityEstimate:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/VelocityEstimate'

positioningDataList:

type: array

items:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/PositioningMethodAndUsage'

minItems: 0

maxItems: 9

gnssPositioningDataList:

type: array

items:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/GnssPositioningMethodAndUsage'

minItems: 0

maxItems: 9

ecgi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ecgi'

ncgi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ncgi'

servingNode:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

targetMmeName:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/DiameterIdentity'

targetMmeRealm:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/DiameterIdentity'

utranSrvccInd:

type: boolean

civicAddress:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/CivicAddress'

barometricPressure:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/BarometricPressure'

altitude:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/Altitude'

hgmlcCallBackURI:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

ldrReference:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LdrReference'

servingLMFIdentification:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LMFIdentification'

terminationCause:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/TerminationCause'

achievedQos:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/MinorLocationQoS'

mscServerId:

$ref: 'TS29503\_Nudm\_UECM.yaml#/components/schemas/E164Number'

[..]

\* \* \* End of Changes \* \* \* \*